The coronavirus pandemic has affected the entire scientific world, but in unequal ways: although some scientists have been able to carry on with their lives and careers, many are struggling with family obligations, financial strain and tenuous employment.

The pandemic has already dimmed job prospects in academia, and the full impacts are probably yet to be seen. Global gross domestic product — the total value of goods produced and services provided — is forecast to shrink this year by 4.9%, according to a study by the Pew Research Center in Washington DC. That decline is expected to hit low-income communities and nations especially hard.

For students and postdocs from less-privileged backgrounds — first-generation students, members of minority ethnic groups or those with financial stress — the pressures of the pandemic are, and will continue to be, particularly intense. “There are a lot of concerns about very talented individuals falling out of the pipeline,” says Barbara Natalizio, chair of the US National Postdoctoral Association, based in Rockville, Maryland, which represents around 79,000 postdocs.

The current crisis must be a call to action, says Bea Maas, an ecologist at the University of Vienna. Maas was the lead author of a June report on the precarity of early-career researchers during the pandemic’s first wave. “There must be a collective effort by the entire scientific community, especially those in leadership positions, to respond to the short- and long-term challenges of this crisis and to perform a role in ensuring that we don’t lose the next generation of talent,” she says.

Junior scientists who are members of minority ethnic groups or are financially disadvantaged describe the support they need.
EMMA HERNANDEZ-SANABRIA
FOREIGN STUDENTS ARE UNCERTAIN OF THEIR PLACE

Since the pandemic broke out, I think many people have been feeling really stressed, including myself. You are always living under uncertainty. At European institutions, you don’t know how long you are going to be able to stay if you are from elsewhere (I grew up in Mexico and got my PhD in Canada before moving to Belgium for my postdoc in 2016). If you don’t have a permanent position (this is my fourth postdoc), life is very precarious.

Like many foreign postdocs in Europe, I’m on a short-term contract. Unlike some European researchers who participate in tax-free funding schemes, I have to pay my own income taxes, and I don’t have any job security. Many international students feel stuck because they don’t know whether they can go back to their own country, but they also don’t know whether they can stay where they’re at. Either way, they wonder whether they will have enough results to defend their thesis.

I was not working in the lab for three months, and I am at a career stage in which I need to produce results. I am researching the human microbiome, and it’s one of the most competitive fields in science right now. Analysing data is something that you can do at home, but it’s not the same as producing results in the lab.

On the positive side, I’ve been able to rethink my routine. Sitting at a computer for nine hours per day isn’t necessary for computational work. Flexibility is important for mental health, and universities should support that. I hope that funding agencies embrace flexibility and change how they measure productivity.

ZEMMY ANG
THERE ARE PROS AND CONS TO VIRTUAL LEARNING

More funding would be a huge help. Students from disadvantaged countries who want to become academics or researchers need help. I have friends who would be very happy to go overseas and then to graduate school, but they can’t because they have to get jobs to support their families. The pandemic will make things
that much harder. They’ll have to put their plans on hold, or just not pursue them at all.

Even with things going virtual now, classes are challenging — describing your equations over Zoom is much harder than writing out what you think on the whiteboard in class.

I'm trying to imagine what my friends in the Philippines, where I'm from, are facing. Everything is shut down, and it might be the Philippines, where I'm from, are facing. PhD student Zemmy Ang was 17. I was living on the street before I put myself through college, while working with older people. Now, I'm doing remote work in physics with Arizona State University in Tempe so that I can apply to a PhD programme.

I live in New Jersey, and there are no PhD programmes near me with courses I want to take. I can't just leave, because I'm a single parent. I have to take care of everything on my own.

I am doing as much research as I can. People used to look down on remote academic work, but that's changing. It's useful for people like me, who don't have those programmes near by. I'm afraid to move to Arizona, not only because of all the pandemic uncertainty but also because people have told me that minorities don’t always feel welcome in that state. Aside from the money problems, this programme could create many mental and emotional issues for me, so there's a lot to consider.

I've been working for years to start a PhD programme, but I don’t know whether I can get the funding for one. Even before the pandemic, none of the institutions I contacted walked me through the ins and outs of financing a PhD.

I want to be an astronomer, but now I don’t know whether that will work out. I'm really scared about it. I have no idea how things will change as the pandemic worsens, but it doesn't look good. Stories like mine are a real wake-up call for people who aren't used to struggle.

“Stories like mine are a real wake-up call for people who aren’t used to struggle.”

Because my job has been stable during the pandemic, I've been thinking more about systemic racism and what I can do to support the racial-justice movement Black Lives Matter. I'm thinking about what kind of culture we want in academia and how to foster an inclusive culture that's empowering to people from all different types of backgrounds.

We need to let more people know about opportunities and make academia more inviting. For example, I grew up in a rural part of West Texas, and I was able to go to my hometown university thanks to a wonderful scholarship for first-generation students that paid for my schooling expenses for four years.

There were so many things I didn’t know as a first-generation student. I didn’t realize that most graduate programmes in science, technology, engineering and maths were paid for. I didn’t realize you got a stipend. I didn’t realize there were health-care benefits.

I chose the applied-physics programme at Rice University in Houston, Texas, for graduate school because it didn't require the physics graduate-admissions examination, which would have cost money. I knew I wanted to run a research lab, but just didn’t think that I could personally achieve that. But a series of mentors empowered me to do so.

Researchers and administrators need to ask themselves why they're not having more of the conversations that will make science more inclusive.

Daniel Gonzales is a physics postdoc at Purdue University, West Lafayette, Indiana.

Interviews by Carrie Arnold and Chris Woolston

These interviews have been edited for length and clarity.
Correction
This Careers feature understated the number of postdoctoral researchers that the US National Postdoctoral Association represents. The actual number is around 79,000, not 40,000.